

Case 3290

Platystrophia* King, 1850 (Brachiopoda, Orthida): proposed conservation of usage by designation of *Porambonites costata* Pander, 1830 (currently *Platystrophia costata*) as the type species of *Platystrophia

M.A. Zuykov

Department of Palaeontology, St. Petersburg State University, 29,
16 Liniya, 199178 St. Petersburg, Russia (e-mail: zuykov@riand.spb.su)

D.A.T. Harper

Geological Museum, Øster Voldgade 5–7, DK-1350 Copenhagen, Denmark
(e-mail: dharper@savik.geomus.ku.dk)

Abstract. The purpose of this application, in relation to Article 75.5 of the Code, is to conserve the prevailing usage of *Platystrophia* King, 1850 for a genus of fossil brachiopod of Ordovician—Silurian age. The description of the type species *Terebratulites biforatus* Schlotheim, 1820 is not diagnostic and no original figures were published. Confusion and uncertainty surround the specific name of the type species because of the conflicting interpretation of the genus and absence of the holotype. It is therefore proposed that the Commission designate *Porambonites costata* Pander, 1830 as the type species of *Platystrophia*.

Keywords. Nomenclature; taxonomy; Brachiopoda; Orthida; *Platystrophia*; *Platystrophia costata*; fossil brachiopods; Ordovician; Silurian.

1. The specific name of *Terebratulites biforatus* was established by Schlotheim (1820, p. 265) for a single specimen of fossil brachiopod, the type area and age of which were indicated as ‘aus dem südlichen Frankreich. Vielleicht gleichfalls aus Kreidelagern der Champagne’. The description of this species is very brief and not supported by figures. The name *T. biforatus* can therefore be applied to any *Spirifer*-like taxon from the Palaeozoic or Mesozoic of France. Although Schlotheim’s original specimen was redescribed twice (Buch, 1837, p. 44; Dietrich, 1922, p. 124), neither study contributed any new information of phylogenetic or taxonomic value. The current confusion surrounding the identity of *Terebratulites biforatus* was introduced by Buch (1837, p. 44), who incorrectly suggested that Schlotheim’s specimen more probably came from the North (i.e. the Baltic region), and not from France: ‘welches wahrscheinlich ebenfalls ein nordisches Stück ist, und nicht aus Frankreich’.

2. The existence of the holotype of *Terebratulites biforatus* had been cited several times (e.g. Buch, 1837, p. 44; Dietrich, 1922, p. 124). The brachiopod collection in the Museum of Natural History of the Humboldt University (Berlin, Germany) includes some material from Schlotheim’s personal collection described in his monograph.

However, the specimen has not been mentioned since 1922. An extensive search for the holotype of *T. biforatus* in the museum in 2002 proved unsuccessful.

3. In 1850 King (p. 106) established the genus *Platystrophia* and designated *Terebratulites biforatus* Schlotheim (sensu Davidson) as the type species. However, King mentioned that the specimens of *T. biforatus* figured and described by Davidson were not spirifers, but representative of new genera. Only one publication by Davidson prior to 1850 is known (Davidson, 1848) where the name *T. biforatus* Schlotheim was applied to the Early Silurian material (disarticulated dorsal and ventral valves) from the United Kingdom. However, based on internal morphology, Davidson placed *T. biforatus* in the genus *Orthis*. He (Davidson, 1871, p. 269) noted that King had cited specimens of *O. biforata* from Davidson's earlier paper (1848, p. 15, pl. 3, fig. 25) as the type species of the genus *Platystrophia*: 'As to the genus, I think I was able to satisfactorily demonstrate in 1848 that its internal characters were those of *Orthis*, and I am glad to find that palaeontologists very generally have followed my identification. Prof. King, in 1849 [=1850], proposed to consider it the type of a new genus, *Platystrophia*'.

4. Following King (1850) nearly all authors who discussed the genus *Platystrophia* ignored the French locality of Schlotheim's specimen of *Terebratulites biforatus* or King's use of the name sensu Davidson, 1848 (see para. 3 above). Most authors used the concept of the species proposed by Buch (1837, p. 44) because the age and locality of *Terebratulites biforatus* Schlotheim was commonly indicated as 'from the Ordovician of the Baltic area (exact locality and horizon uncertain)' (Cocks, 1978, p. 55) or 'Ordovician, from the erratic boulder of the North Germany' (Alichova, 1960, p. 186). McEwan (1919, p. 388) proposed replacing Schlotheim's type species *T. biforatus* with *Platystrophia laticosta* (Meek, 1873) from the Upper Ordovician of North America (invalid under Article 30 of the Rules then in force (1905); Article 67.2 of the 4th (current) edition). This proposed replacement was discussed by a number of authors (see Bather, 1920, p. 89; Dietrich, 1922, p. 123). Alichova (1969, p. 17) proposed that the specimen described by Öpik (1930, p. 103, pl. 5, fig. 48) as *Platystrophia biforata* (Schlotheim) from the lower Caradoc of north Estonia should be selected as the lectotype for *Terebratulites biforatus* (invalid under Article 69(a)(i) of the Code then in force (1964); Article 72.2 of the 4th (current) edition). Moreover, it is clear that the Estonian material is not the same species as the specimens from the Wenlock (see para. 5 below).

5. The new genus *Platystrophia* King, 1850 was based on the nominal species *Terebratulites biforatus* Schlotheim as misidentified by Davidson (1848) (as *Orthis biforata*) (see para. 3 above). Under Article 11.10 of the Code, King's action is interpreted as a 'deliberate employment of a misidentification' and renders the specific name a new nominal species 'available with its own author and date as though it were newly proposed in combination with the new genus-group name'. Therefore, the type species of *Platystrophia* King, 1850 is *Platystrophia biforata* King, 1850 (p. 106) from the 'Wenlock limestone of Walsall' in the United Kingdom (Davidson, 1848, p. 323) now the Much Wenlock Limestone Formation of the early Silurian (Bassett et al., 1975) (Articles 50.1.2, 67.13.1). The lectotype of this species should be one of the two specimens figured and described by Davidson (1848, p. 15, pl. 3, fig. 25) (Article 72.4.2). However, the original specimens of *Orthis biforata* described in Davidson's monograph (= *Platystrophia biforata* King, 1850) were lost

and there is no other original material from the type horizon and type locality housed in the Natural History Museum, London (L.R.M. Cocks & L.E. Popov pers. comm.). Bassett (1972, p. 32, pl. 5, figs. 3–5) described specimens from the Wenlock of Walsall as *Platystrophia* sp. A and included specimens of *Orthis biforata* described by Davidson (1848, 1871) in his synonymy list. There were no satisfactory data on the morphological features of *Orthis biforata* in either the description or on the figures in Davidson (1848, p. 15) which allow unequivocal attribution of any specimens from the Wenlock Limestone of Walsall to *Platystrophia biforata* King, 1850. Thus, there are no strong grounds to confirm or reject the assumption that Bassett (1972, p. 32) described and illustrated specimens conspecific with *Platystrophia biforata* King even if they came from the type locality and horizon. Davidson (1871, p. 268) figured some additional specimens under the name *Orthis biforata* from the Caradoc and Wenlock of the United Kingdom and Ireland (but not illustrated by Davidson, 1848, p. 15, pl. 3, fig. 25) under the name *O. biforata*; these are also missing.

6. Baltic representatives of the genus *Platystrophia* have recently been the subject of a series of papers by Zuykov (1995, 1999 & 2001) but the problem of designating a viable type species for the genus *Platystrophia* is unresolved. These studies emphasized the importance of the correct diagnosis of the type species of the genus because of significant variations in the morphology of the cardinalia in the numerous species attributed to this genus. In the original diagnosis of *Platystrophia*, King (1850) recorded the presence of 'large punctures' (which were later interpreted as granules, but in reality represent the bases of hollow spines) on the external shell surface. Therefore, a presence of this character, which is unique among brachiopods of the order Orthida, must be regarded as an important diagnostic feature of the genus *Platystrophia*. There are over 150 Ordovician and Silurian species currently assigned to *Platystrophia* from many parts of the world (Zuykov, 1999, p. 198; 2001, p. 332). In general, King's (1850) diagnosis provided a clear morphological concept which can be applied to most of the species presently referred to the genus. It is desirable to maintain stability in the nomenclature of this important and distinctive taxon and the Commission is therefore asked to ratify prevailing usage by designating a new type species for the genus *Platystrophia* (see para. 8 below).

7. King (1850, p. 106) included four species in the genus *Platystrophia* apart from the originally designated type species: *Spirifer tscheffkini* Verneuil, 1845, *Porambonites dentatus* Pander, 1830, *Porambonites costata* Pander, 1830 and *Spirifer terebratuliformis* McCoy, 1846. The first species, *Spirifer tscheffkini* Verneuil, 1845, is now assigned to the unrelated genus *Noetlingia* Hall & Clarke, 1893 (p. 229) in the order Pentamerida, whereas the three others form a distinct morphological group (*Platystrophia*). Because of the uncertain identity of the type species *P. biforata*, due to the ambiguous description of the species and absence of type material we consider *P. biforata* King to be a nomen dubium and therefore request that the type species designation be set aside and that *Porambonites costata* Pander, 1830, which is clearly described, should be designated as the type species of *Platystrophia*. *P. costata* (Pander, 1830) was revised recently by Zuykov (1999, p. 200).

8. Pander (1830, p. 96) established the distinctive brachiopod species *Porambonites costata*. A holotype was not designated in the original publication, and the syntype material had been lost before the beginning of the 20th century (Jaanusson & Bassett, 1993, p. 23). However, two complete shells of *Platystrophia* from Pander's 1845

collection (MMI no. 362) are preserved in the Museum of the Mining Institute (St. Petersburg, Russia). They were collected in the type area (Pulkova River, St. Petersburg district, according to the map of the localities given in the original publication), thus they can be considered as topotypes. These specimens were labelled by Pander as '*Spirifer biforatus* var. *chama*, *biplicata*' and are considered to be synonymous with *Porambonites costata* Pander (see discussion in Verneuil, 1845, pp. 139, 140). They fit the original description with respect to external shell morphology and radial ornament and strongly resemble the original illustrations of *Porambonites costata* Pander, 1830 (p. 96, pl. 11, fig. 3). Zuykov (1999, p. 200, pl. 1, figs. 1–5) designated one of the specimens from Pander's 1845 collection from the Pulkova River, St. Petersburg region (horizon not specified, probably from the Kunda Stage, Obukhovo Formation) as the neotype of *Platystrophia costata* (Pander).

9. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to set aside all previous fixations of the type species for *Platystrophia* King, 1850 and to designate *Porambonites costata* Pander, 1830 as the type species;
- (2) to place on the Official List of Generic Names in Zoology the name *Platystrophia* King, 1850 (gender: feminine), type species by designation in (1) above *Porambonites costata* Pander, 1830;
- (3) to place on the Official List of Specific Names in Zoology the name *costata* Pander, 1830 (gender: masculine), as published as the binomen *Porambonites costata* (specific name of the type species of *Platystrophia* King, 1850) and as defined by the neotype designated by Zuykov, 1999.

Acknowledgements

We thank Robin Cocks and Sarah Long (*Natural History Museum, London*), Solene Morris (*ICZN Secretariat, London*) and Leonid Popov (*National Museum & Galleries of Wales, Cardiff*) for their help with the study of Thomas Davidson's collections and helpful comments. This paper is a contribution to IGCP Project 503.

References

- Alichova, T.N. 1960. Orthida. Pp. 183–197 in Sarycheva, T.G. (Ed.), *Osnovy Paleontologii*. 343 pp. Moskva. [In Russian].
- Alichova, T.N. 1969. *Stratigraphy and Brachiopods of Middle Ordovician deposits of Moscow syncline*. 70 pp. Nedra, Moscow. [In Russian].
- Bassett, M.G. 1972. The articulate brachiopods from the Wenlock Series of the Welsh Borderland and South Wales. Vol. 2, part 126, no. 532, pp. 27–78. *Palaeontographical Society Monograph*. Palaeontographical Society, London.
- Bassett, M.G., Cocks, L.R.M., Holland, C.H., Rickards, R.B. & Warren, P.T. 1975. The Type Wenlock Series. *Institute of Geological Sciences Report 75/13*. vi, 19 pp.
- Bather, F.A. 1920. A study of the Brachiopod genus *Platystrophia* by Eula Davis McEwan. Review. *Geological Magazine* (Cambridge), **57**: 88–90.
- Buch, L. von. 1837. Über *Delthyris* oder *Spirifer* und *Orthis*. *Koeniglich-Preussische Akademie der Wissenschaften. Physikalische Abhandlungen . . . Aus dem Jahre 1836*. 79 pp. Berlin.
- Cocks, L.R.M. 1978. A review of British Lower Palaeozoic brachiopods, including a synoptic revision of Davidson's Monograph. Part 131, no. 549, 256 pp. *Palaeontographical Society Monographs*. Palaeontographical Society, London.
- Davidson, T. 1848. Mémoire sur les brachiopodes du système Silurien supérieur d'Angleterre. *Bulletin de la Société Géologique de France*, (2)**5**: 309–338.

- Davidson, T. 1871. A Monograph of British Fossil Brachiopoda. Part 7, no. 4. The Silurian Brachiopoda. Pp. 249–397. *Palaeontographical Society Monograph*. Palaeontographical Society, London.
- Dietrich, W.O. 1922. Bemerkung zum Genotype der Brachiopodengattung *Platystrophia*. *Zentralblatt für Mineralogie, Geologie und Palaeontologie*. Pp. 123–124. Stuttgart.
- Hall, J. & Clarke, J.M. 1893. An introduction to the study of the genera of Palaeozoic Brachiopoda. *Palaeontology of New York*. Vol. 8, part 2, 317 pp. Charles van Benthuysen & Sons, Albany.
- Jaanusson, V. & Bassett, M.G. 1993. *Orthambonites* and related Ordovician Brachiopod genera. *Palaeontology*, 36(1): 21–63.
- King, W. 1850. *A monograph of the Permian Fossils of England*. 258 pp. Palaeontographical Society, London.
- McCoy, F. 1846. A Synopsis of the Silurian Fossils of Ireland Collected from the Several Districts by Richard Griffith, FGS. 72 pp. Privately published by Sir R.J. Griffith, Dublin.
- McEwan, E.D. 1919. A study of the brachiopod genus *Platystrophia*. *Proceedings of the United States National Museum*, 56(2297): 383–448.
- Meek, F.B. 1873. Description of invertebrate fossils of the Silurian and Devonian systems. *Ohio Geological Survey*. Report. Vol. 1, part 2. Paleontology. 1–243. Pp. xiii [ii], 399 [3].
- Öpik, A. 1930. Brachiopoda Protremata der Estländischen Ordovizischen Kukruse-Stufe. *Acta et Commentationes Universitatis Tartuensis*, 20: 1–262.
- Pander, C.H. 1830. *Beiträge zur Geognosie des russischen Reiches*. 165 pp. St. Petersburg.
- Schlotheim, E.F. von. 1820. *Die Petrefactenkunde auf ihrem jetzigen Standpunkte durch die Beschreibung einer Sammlung versteineter und fossiler Überreste des Their- und Pflanzenreichs der Vorwelt erläutert*. 726 pp. Gotha.
- Verneuil, E.P. 1845. Paleontologie, Mollusques, Brachiopodes. In Murchison, R.I., Verneuil, E.P. & Keyserling, A. (Eds.), *Geologie de la Russie d'Europe et des Montagnes de l'Oural*, 2(3): 17–395.
- Zuykov, M.A. 1995. New species of brachiopods from the Middle Ordovician of the St. Petersburg region (Orthida, Plectorthidae). *Proceedings of St. Petersburg State University*. Geology, (7)3: 108–111. [In Russian].
- Zuykov, M.A. 1999. *Platystrophia* (Orthida, Brachiopoda) from the Arenig and lowermost Llanvirn of northwestern Russia. *Proceedings of the Estonian Academy of Sciences*, 48(4): 195–212.
- Zuykov, M.A. 2001. *Platystrophia* (Orthida) in the Ordovician and Early Silurian of the East Baltic. Pp. 327–334 in: Brunton, C.H.C., Cocks, L.R.M. & Long, S.L. (Eds.), *Brachiopods past and present*, vol. 63, *International Brachiopod Congress (The fourth, millenium, international brachiopod congress: abstracts: 10th–14th July 2000 International Brachiopod Congress)*. Vol. 63. Systematics Association, Taylor & Francis, London, New York.

Acknowledgement of receipt of this application was published in BZN 60: 178.

Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).